A RE-EVALUATION OF CUPHEA, SECT. LEPTOCALYX, SERIES BUSTAMANTAE

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In the course of studying the collections of *Cuphea* from Mexico deposited in the Natural History Museum in Paris, type material was found representing four of the five species of Sect. Leptocalyx, the third series. With the loan of additional types from Kew and Halle herbaria it was possible to compare authentic material of all species in this poorly known group. The species involved were *C. bustamanta*, *C. calaminthifolia*, *C. corniculata*, *C. debilis*, and *C. imberbis*. The latter was regarded by its author as a member of Sect. Heterodon, but as will be evident from the morphology, it clearly belongs to Sect. Leptocalyx.

The first named species, *Cuphea bustamanta*, is frequently collected in pine-oak woods in Mexico and is easily recognized. It is fully described here for the first time and the position of an intraspecific taxon is re-evaluated. The remaining species are known only from type material and a few additional collections. Distinctions between them as based on the protologues are minor and examination of the types confirms the suspicion that *C. calaminthifolia*, *C. corniculata*, *C. debilis*, and *C. imberbis* represent a single taxon. They are united under the earliest epithet, *calaminthifolia*.

The series, established by Koehne (Fl. Bras. 13(2) : 236. 1877) was numbered but unnamed. Hence, the name *Bustamantae* is proposed, based on the type species of the series. The series is a particularly distinctive one within the genus, immediately recognizable by its slender trailing habit, transversely oriented (at right angles to the stem), 2-armed hairs, and 9-staminate flowers. Because Koehne's description of the series is very brief and fails to mention a number of prominent characters which the species share, including the characteristic transverse malphigaceous-like hairs, an expanded diagnosis is given below.

Cuphea, Sect. Leptocalyx, Series **Bustamantae** S. A. Graham, ser. nov. Type: *C. bustamanta* Lex.
Series 3 Koehne, Fl. Bras. 13(2): 236. 1877.

Herbae graciles repentes, verisimiliter perennes, ubique secus caules prostratos radicantes. Caules, petioli, et pedicelli pilis transversalibus malpighiaceis praeditis. Folia membranacea, ovato-elliptica apice acuto ad acuminato. Inflorescentia racemosa, foliata, flores paucis. Calyx gracilis, intus glaber, 13-30 mm longus, calcare descendente munitus; appendices lobos aequantes ad superantes multum. Petala 6, unequales, generaliter purpurea. Stamina 9. Ovula (8-)12-18(-23). Discus deflexus in calcare, saepe teretiusculus.

KEY TO THE SPECIES

Calyx bright red with a greenish white area encircling the mouth; lobes of the calyx small, ± equal in size; appendages 2-4 times the length of the lobes; dorsal petals 3-5 mm long, purple-black (rarely yellowish green); ventral petals 1-1.5 mm long, yellowish green, early deciduous. Michoacán to Oaxaca. ..... 1. *C. bustamanta*

Calyx straw-colored to partly or wholly pale reddish purple; dorsal lobe of the calyx distinctly larger than the other five; appendages slightly less than to 3 times the length of the ventral lobes of the calyx; dorsal petals 5-12 mm long, purple; ventral petals 1.5-4 mm long, purple or white. Southern San Luis Potosí to Veracruz, Jalisco, and Michoacán. ..... 2. *C. calaminthifolia*

1. **Cuphea bustamanta** Lex. in LaLlave & Lex., Nov. Veg. Descr. **1**: 21. 1824. (Fig. 1a, b.) Type: MICHOACAN: Habitat prope Vallisoletum [Morelia], *LaLlave & Lexarza s.n.* (Holotype, there is no specimen which can be considered an authentic type at G and apparently all original material is lost; Neotype, 29 mi E of Morelia on Mex. 15, 2585 m, 6 Aug 1962, *S. A. Graham* 154 (MICH!) This specimen compares favorably with the protologue and was collected in the same general region as the missing holotype.)

Cuphea reipublicae Rob. & Seat. Proc. Am. Acad. **28**: 106. 1893. Type: MICHOACAN: Near Patzcuaro, 28 Jul 1892, *C. G. Pringle* 4142 (Holotype, GH; isotypes, P! US! VT). The type number was incorrectly cited in the protologue as Oct 1892, *Pringle* 4112.

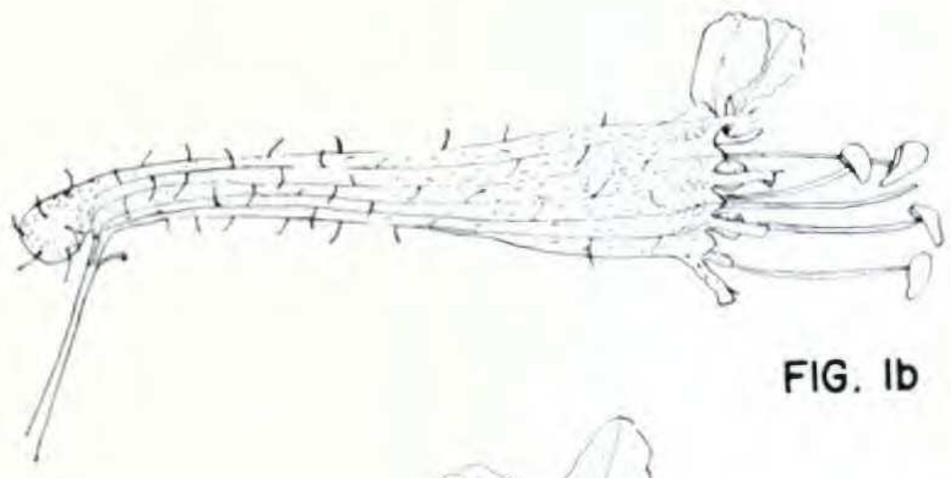

FIG. 1b

FIG. 1a

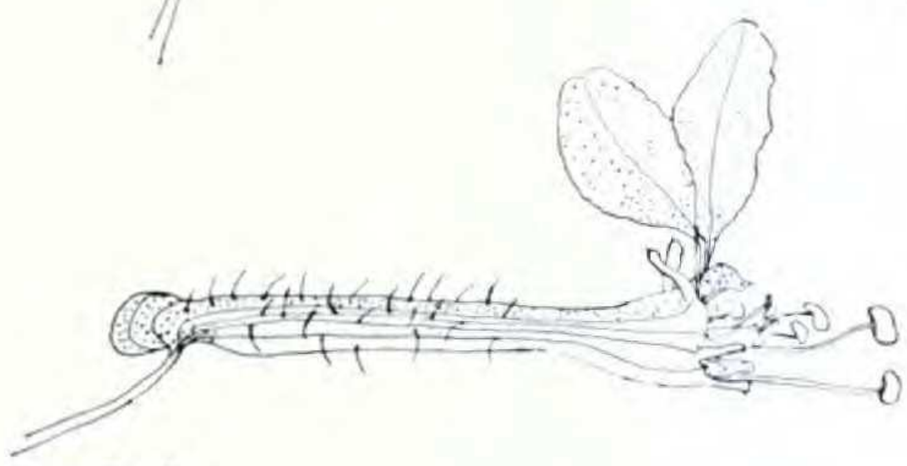

FIG. 2

Fig. 1. *Cuphea bustamanta* Lex. 1a, habit ×½, *(Graham 53)*; 1b, flower ×1¼, *(Graham 154)*. Fig. 2. *C. calaminthifolia* Schlectd., flower ×1¼, *(Anderson & Laskowski 3819)*. Fig. 3. Distribution of species in Mexico, each symbol representing one or more collections at that locality.

According to Davis (H. B. Davis, Life and Works of Cyrus Guernsey Pringle, p. 100) and the Pringle Herbarium (pers. comm.), *Pringle* 4112 is *Euphorbia torrida* DC., collected 17 Jun 1892, at Rascon, San Luis Potosí and *Pringle* 4142 is *C. reipublicae* Rob. & Seat., collected 28 Jul 1892 by brooks near Patzcuaro. All type material including the specimen presumably studied by Robinson and Seaton at GH bears the same printed label numbered 4142. Although Pringle also was in Patzcuaro in October, his collection numbers there were mainly 4200's and 4300's and no mention is made in his diary of recollecting no. 4142, nor are any specimens known to bear the data cited in the protologue.

Cuphea bustamanta forma *reipublicae* (Rob. & Seat.) Koehne, Bot. Jahrb. **23** (Beibl. 57): 29. 1897.

Parsonia bustamanta (Lex.) Standl. Contr. U.S. Natl. Herb. **23**: 1021. 1924.

Herbs, slender, trailing, probably perennial, with fibrous, adventitious roots occurring along the length of procumbent stems up to 1 m long; stems bearing erect to decumbent branches up to 40 cm tall, covered with dense, minute, two-armed, colorless, transversely oriented hairs and a row of longer, non-branched hairs. *Leaves* ovate to elliptic, the blades 20-50 mm long, 10-28 mm wide, the apex acuminate, the base obtuse to generally attenuate; petioles 5-15 mm long, bearing transverse two-armed hairs; blades thin, dark green above, pale beneath, both surfaces bearing minute, stiff hairs mixed with longer, weak hairs, the long hairs on the lower surface sometimes confined to the margins of the leaf; leaves scarcely diminishing in size toward the apex of the stem. *Inflorescence* a leafy, few-flowered raceme; flowers 1 per node, interaxillary on bibracteolate pedicels 4-13 mm long; bracteoles linear, green, 1-3 mm long. *Calyx* slender, nearly straight, 22-30 mm long including a downward curving, basally rounded spur 2-3 mm long, bright red except for a greenish white area encircling the mouth of the calyx; externally bearing short, stiff, colorless,

distally oriented hairs mixed with scattered, longer, colorless, weak hairs, the latter most concentrated at the proximal end of the calyx; internally glabrous, neither bialate nor vesiculate; mouth of calyx slightly flaring, oblique with the dorsal side appearing shorter; neck of the calyx not contracted in fruit. Lobes of the calyx small, exceeded by linear, green appendages, 2-4 times the length of the lobes. *Petals* 6, the two dorsal ones obovate, generally purple-black, 3-5 mm long including a claw 1 mm long, (rarely yellowish green, then 1-2 mm long), subtended at the base by a flattened, yellow scale, free along one edge and included within the calyx; ventral petals yellowish green, obovate, to oblong, ca. 1 mm long, early deciduous. *Stamens* 9, mostly exserted, glabrous, the filaments and anthers deep purple. *Pollen* oblate, distinctly triangular in polar view; tricolporate, the pores equatorially arranged, equidistant, not protruding; syncolpate; exine tectate, finely and uniformly striate over the entire surface of grain, striae extending to the poles; diameter 37 μ. *Gynoecium* with punctate to capitate sigma and exserted, glabrous style; ovules 12-15 (-23 fide Koehne); seeds lenticular, orbicular in outline, 2 mm in diameter. *Disc* horizontal in spur, 1.5 mm long, thick, nearly terete, slightly tapering to a blunt apex. $n = 12$.

Growing generally on steep, moist banks and along streams in pine-fir-oak forests at elevations from 1800-3600 m. Known from Michoacán to Oaxaca (Fig. 3). According to LaLlave and Lexarza, flowering throughout the year.

The species may be recognized by the long, slender, red calyx with linear, green appendages which markedly exceed the calyx lobes, its 9-staminate condition and the procumbent stems and branches bearing transverse two-branched hairs.

Although Koehne, in his monograph of *Cuphea* (1903, p. 171) cites *C. reipublicae* Rob. & Seat. as *C. bustamanta* var. *reipublicae* (Rob. & Seat.) Koehne, he actually made the combination under the rank *forma*. The type of the form differs from typical *C. bustamanta* only in its yel-

lowish green, rather than purple dorsal petals. Other character differences cited by Koehne were the 1 m height of the plant and the "somewhat broader" leaves lacking long (hispid) hairs in the middle of the ventral leaf surface. Examination of two isotypes reveals that the "height" of 1 m was actually the length of the procumbent, adventiously rooted main stem, the height of the erect branches being 15-40 cm, which is typical of the species. The width of the leaves falls within that of typical *C. bustamanta*, and the arrangement of long hairs on the leaf is so variable on specimens examined that this is eliminated as a distinguishing character of the form. In keeping with my taxonomic treatment of variability in other species of *Cuphea*, I choose not to recognize, with formal taxonomic rank, geographically isolated collections such as these which demonstrate but a single, minor character difference.

Additional specimens examined: D.F.: Km. 61, road from Mexico City to Cuernavaca, 4600 m [incorrect?], 11 Aug 1929, *Y. Mexia* 2714 (MICH, MO). GUERRERO: Pie de la Cuesta, Toro Muerto, 2900 m, 17 Dec 1937, *G. B. Hinton* 11084 (US); Galeana, Teotepec, 3000 m, 25 Dec 1937, *Hinton* 11129 (MO, US); Montes de Oca, San Antonio-Buenos Aires, 22 Apr 1938, *Hinton* 14041 (MICH, MO, US); Galeana, Teotepec, 2600 m, 18 Mai 1939, *Hinton* 14275 (MO, US); Mina, Petlacala, Barranca del Ranchito, 1920 m, 1 Jan 1938, *Mexia* 9064 (US); 1960 m, 8 Jan 1938, *Mexia* 9093 (MO, US); Omiltemi, 20 km W de Chilpancingo, 2250 m, 1 Sep 1962, *J. Rzedowski* 15925 (MICH); 5 km W de Camotla, Munic. Chichihualco de Leonardo Bravo, 2600 m, 8 Apr 1963, *Rzedowski* 16403 (MICH); El Asoleadero, 15 km al oeste de Camotla, about 45 km W of Chilpancingo, 2650 m, 2 Dec 1963, *Rzedowski* 18073 (MICH), *C. Feddema* 2850 (MICH); ± 2 km NE del Campamento El Gallo, approx. 17° 28′ N, 100° 13′ W, 2650 m, 27-29 Jan 1965, *Rzedowski & R. McVaugh* 135 (MICH). MEXICO: At state line between Michoacán and México on Mex. 15, 2600 m, 16 Jul 1961, *S. A. Graham* 53 (MICH); Temascaltepec, Comunidad, 2510 m, 6 Jul 1932, *Hinton* 964 (US), *Cajones*, 9 Jun 1935, *Hinton* 7955 (MICH, MO), Pantoja, 9 Sep 1935, *Hinton* 8429 (US); ca. 6 mi S of Tenancingo and 8 mi N of Villa Guerrero on Route 55, 2600 m, 11 Aug 1960, *J. T. Mickel* 689 (MICH); Low hills along Hwy 15, 17 mi E of Zitácuaro, 14 Oct 1962, *W. A. Weber & L. A. Charette* 11879 (MICH). MICHOACAN: Cerro Azul, pres Morelia, 6 Apr 1910, *F. Arsenè s.n.* (P); Temaxcal, 18 Mai 1939, *T. C. & E. M. Frye* 26067 (MO, US); on Mex. 15, 28 mi E of Morelia, 2150 m, 17

Jul 1961, *Graham* 57 (MICH); Zitácuaro, 1800 m, 15 Mai 1938, *Hinton* 11853 (US); Tancítaro, 2050 m, 26 Nov 1940, *Hinton* 15721 (US) (petals all yellow); 6 mi N of Tancítaro, 2615 m, 24 Jul 1940, *W. C. Leavenworth* 335 (MICH, MO); Mt. Tancítaro, 2300 m, 7 Mai 1941, *Leavenworth & Hoogstraal* 4018 (MO), 2425 m, 9 Jul 1941, *Leavenworth & Hoogstraal* 4033 (MO); 40 km east of Morelia, sobre la carretera a Zitácuaro (Km 269), 2600 m, 20 Jul 1964, *Rzedowski & de la Sota* 18361 (ENCB, MICH). MORELOS: Cerro Zempoala, cerca de las Lagunas de Zempoala, 3200-3400 m, 10 Nov 1957, *L. Paray* 2539 (ENCB); Valle del Tepeite, Aug 1932, *E. Lyonnet* 1531 (US); Lagunas de Zempoala, 17 Sep 1938, *Lyonnet* 2457 (US); barranca above Cuernavaca, 2000 m, 31 Jul 1896, *Pringle* 6382 (MO, US), 11 Nov 1902, *Pringle* 9786 (MO, US), 21 Jul 1904, *Pringle* 11981 (MICH, US); near Cuernavaca, 27-30 Mai 1899, *J. N. Rose & W. Hough* 4409 (US). Oaxaca: 1842, *M. Ghiesbreght* 102 (P); vicinity of Cerro Zempoaltepetl, at Patio de Arena, about 5 km E of summit, 2800 m, 9 Aug 1950, *Boone Hallberg* 892 (MICH); Campamento Río de Molino, 4 km SW of San Miguel Suchistepec, 2250 m, 21 Sep 1965, *Rzedowski* 21061 (MICH). Locality unknown: Mexique?, 1826 (Photo, Field Mus. neg. no. 33463 from G at MICH).

2. **Cuphea calaminthifolia** Schlectd., Linnaea **12:** 274. 1838. (Fig. 2.) Type: VERACRUZ: Cuesta grande de Chiconquiaco, Sep 1829, *Schiede s.n.* (Holotype, HAL!; isotypes, Photo of CGE isotype, MICH neg. no. 1732, 1733!, P!).

Cuphea corniculata Koehne, Fl. Bras. 13(2): 236. 1877. Type: HIDALGO?: between Tampico and Real del Monte near Pachuca, *Berlandier* 362 (Holotype, probably was at Berlin; isotype, P!). No specimen was cited in the protologue but Koehne later (Bot. Jahrb. **2:** 415. 1882) gave the locality of the species as "Inter Tampico et Real del Monte!", then in his monograph (Pflanzenr. 216. 171. 1903) cited the single collection, *Berlandier* 362 from "Zwischen Tampico und Real del Monte bei Pachuca."

Cuphea debilis Hemsl., Diag. Pl. Nov. Mex. 3: 51. 1880, (amplified in Hemsl., Biol. Centr. Am. 5: 439. 1880). Type: VERACRUZ: Jalapa, *Dr. Coulter* 156 (Holotype, K!).

Cuphea imberbis Rose in Koehne, Bot. Jahrb. **41:** 94. 1907. Type: HIDALGO: wet banks, Trinidad Iron

Works, 29 Jul 1904, C. G. *Pringle* 8979 (Holotype, US!; isotypes, MICH! Photo of MSC isotype, MICH neg. no. 1039, 1040! MO! P!).

Herbs, slender, trailing, probably perennial, with weak, decumbent stems 20-65 cm long bearing adventitious roots along their length, and covered with minute, two-branched, colorless, transversely oriented hairs and longer, weak, non-branched hairs, the hairs especially dense on younger portions. *Leaves* broadly ovate to narrowly elliptic, the blades 15-60 mm long, 8-30 mm wide, the apex acuminate, the base attenuate; petioles 4-10 mm long, bearing same hair types as the stem; blades thin, dark green above, pale gray-green below, both surfaces bearing minute stiff hairs mixed with sparse to dense, longer, weak hairs; leaves scarcely diminishing in size toward apex of the stem. *Inflorescence* a leafy, few-flowered raceme; flowers 1 or 2 per node, interaxillary (or occasionally axillary) on bibracteolate pedicels 7-15 mm long; bracteoles linear, green or purple, less than 1 mm long. *Calyx* very slender, 12-27 mm long including a downward curving, basally rounded spur 1-2(-3) mm long, calyx at anthesis 1.5 mm wide, pale reddish purple to straw-colored; externally bearing dense, short, stiff, colorless, distally oriented hairs and scattered longer, weak, colorless or purple hairs, the latter often more concentrated at the proximal end of the calyx; internally glabrous, neither bialate nor vesiculate; mouth of the calyx slightly flaring, not oblique; neck of the calyx scarcely contracted in fruit. Upper lobe of the calyx broadly deltoid, apparently deep purple within, 1.5 mm long, 2 mm wide, distinctly larger than the other five lobes which are less than 1 mm long and ca. 1 mm wide; appendages oblong to spathulate, slightly less than to three times the length of the small calyx lobes. *Petals* 6, greatly unequal, the two dorsal ones purple, obovate to oblong, (6-)8-12 mm long, tapering basally to a very short claw, subtended at the base by a thickened scale which is obliquely truncate to corniform along the free edge and included within the calyx; ventral petals purple to pale purple or white, 1-2(-6)

mm long, obovate. *Stamens* 9, 3 or 4 (-6) exserted, glabrous. *Pollen* oblate, triangular to oval-triangular in polar view; tricolporate, the pores equatorially arranged, equidistant, not protruding; syncolpate; exine tectate, striate over entire surface of grain, striae extending to the poles; diameter 33μ. *Gynoecium* with capitate stigma and exserted, glabrous style; ovules (8-) 12-18; seeds dark brown, lenticular, nearly orbicular in outline, 2 mm long, 1.75 mm wide. *Disc* horizontal in spur, ca. 1 mm long, thick, nearly terete, slightly tapering to a blunt apex.

An infrequently collected species, ranging from southern San Luis Potosí to Veracruz on the east and presently known from Jalisco and northern Michoacán in the western mountains (Fig. 3). Its habitat is identical to that of *C. bustamanta*, though the elevations at which it grows, 1450-2500 m. are somewhat lower. It has been collected in bloom from May through December.

Described by Schlectendal as not a very elegant plant, its distinguishing features are the weak trailing stems with transversely oriented malpighaceous-like hairs, slender, often colorless to pale reddish purple calyx with large dorsal calyx lobe, 9 stamens, and 6 unequal deep purple to pale or white petals. Vegetatively, it is very similar to *C. bustamanta* but the calyx of that species is red, lacks the large dorsal calyx lobe, and has smaller purple-black dorsal petals. In Koehne's key (1903) the species are contrasted by axillary vs. interaxillary position of the flowers. Examination of specimens has shown, however, that the position of the flower is generally interaxillary in both species, so that they cannot be distinguished by this character.

Koehne, in initially describing *Cuphea corniculata*, suggested it might be merely a variety of *C. calaminthifolia*. He later reiterated this suggestion (Bot. Jahrb. 2: 414. 1882), but still later, in his monograph of the genus, omitted comment regarding such a relationship. The features of *C. corniculata* which should distinguish it from *C. calaminthifolia* are more a matter of semantics than actual character differences. Examination of type material

shows that the obovate dorsal petals of *C. calaminthifolia* and the cuneate oblong petals of *C. corniculata* are essentially the same shape, those of the former varying from obovate to oblong, and the remaining petals on the isotype of *C. corniculata* being oblong. The only other character which separates the species is the shape of the scale. There is one flower on the isotype of *C. corniculata* and of the two scales present there, one terminates in a short horn-like process, while the other may be classified with the scales of *C. calaminthifolia* as obliquely truncate in shape. The other variable characters of the two species are identical, overlap, or are insignificantly different. Table I lists the characters taken from the type material representing this taxon and the others to be discussed in which variation is found. Characters not included on the table are considered identical on all the specimens examined. Color of the calyx and petals varies among the types but could not be determined with certainty, due to the age and poor preservation of the specimens.

Hemsley, in describing *Cuphea debilis*, suggested it was closely allied to *C. calaminthifolia*, but saw no specimens of the latter. The type of *C. debilis* consists of one whole and one partial stem, both much wilted at the time they were pressed, and each bearing a single flower. The general dimensions of the type are indeed smaller than the other taxa included within *C. calaminthifolia*, but the entire aspect of the type is a depauperate one. The differences between *C. debilis* and *C. calaminthifolia* lie in the former's generally smaller dimensions, fewer ovules, and the relatively long appendages of the calyx. The length of the appendages, as can be seen from the comparative table, falls within the range of variation of the species. The small dimensions and ovule number may be attributed to poor growing conditions of the plant, though even if considered typical of the population are still within reasonable limits of size variation for the species.

The species *Cuphea imberbis*, on the basis of its enlarged dorsal lobe, was considered by both Rose and Koehne to

Table I. Comparison of Variable Characters From Type Material

	calaminthifolia	*corniculata*	*debilis*	*imberbis*
Height	20-60 cm	50-65 cm	30 cm	30-40 cm
Leaves	15-32 mm long 8-12 mm wide	40-60 mm 15-22 mm	17-22 mm 7-10 mm	25-60 mm 12-30 mm
Petioles	4- 5 mm long	5-10 mm	5- 7 mm	5-10 mm
Pedicels	7-11 mm long	8-10 mm	12-15 mm	6-10 mm
Calyx	15-25 mm long	15-17 mm	12-15 mm	17-20 mm
Appendages	ovate, equal to slightly exceeding lobes	oblong, 2× longer than lobes	oblong to spathulate 2-3× longer than lobes	oblong to spathulate 2-3× longer than lobes
Dorsal Petals	obovate 6-8.5 mm long	oblong 10 mm long	obovate 5-6 mm long	obovate-oblong 10-12 mm long
Ventral Petals	3-6 mm long	1.5-2 mm	1-2 mm	1.5-2 mm
Scales	obliquely truncate	corniform-obliquely truncate	obliquely truncate or rounded	obliquely truncate
Ovules	13-18	14	8	12

belong to Sect. Heterodon. However, the combination of trailing habit, long calyx, 9 stamens, transversely oriented malpighaceous-like hairs, and pollen morphology places it more naturally in Sect. Leptocalyx, series Bustamantae. The characters from the type of *C. imberbis* fall within the range of variation displayed by the other types studied and the species is unquestionably synonymous with *C. calaminthifolia.*

The pollen morphology displayed by *Cuphea calaminthifolia* deserves special comment. As recorded elsewhere (Graham & Graham, 1967) *Cuphea* is a distinctly eurypalynous genus with species frequently having a unique morphology. The section Leptocalyx palynologically is a natural one, characterized by triangular to oval-triangular, syncolpate, much striated pollen with non-protruding or slightly protruding pores. Section Heterodon, though more diverse in pollen characters, has oval-triangular to orbicular, non-syncolpate or syncolpate pollen with striae mostly concentrated around the highly protruding pores. The pollen of *C. calaminthifolia* is definitely of the type found only in Sect. Leptocalyx and substantiates the species placement there, rather than in Sect. Heterodon. Pollen morphology further suggests that the "key" character of Sect. Heterodon, the large dorsal calyx lobe, does not delimit a natural group of species but may well have arisen more than once in the genus in distantly related taxa (also cf. *C. koehneana* and *C. paucipetala* in Graham, 1968, p. 5). Thus taxa with this character need to be evaluated from the standpoint of their total morphology for a more natural taxonomic placement.

Additional specimens examined: HIDALGO: Km 254, 14 Jul 1968, *Irma Schnooberger* 7999 (MICH); Km 310.5, between Zimapan and Tamazunchale, 15 Jul 1948, *Schnooberger* 8036A (MICH). JALISCO: Cerro del Muñeco or Sierra de Manantlán, 30-35 km SE of Autlán, 2100-2450 m, 29 Sep 1966, *W. R. Anderson & C. W. Laskowski* 3819 (MICH); Sierra de Manantlán, 15-20 mi SE of Autlán, about 2 mi from Aserradero San Miguel Uno, 2250-2400 m, 4-5 Nov 1952, *McVaugh* 13867 (MICH, US); Near Santa Mónica, probable lat. ca. 20° N Long., ca. 104°, 30′ W, 1950-2050 m, 12-13 Nov. 1952, *McVaugh* 14050 (MICH, US); 6-7 road-miles NW of San Miguel de la Sierra

(40-50 km, airline, west of Ayutla), 1900-2000 m, 4 Nov 1962, *McVaugh* 22063 (MICH); mountains east of Mamantlán, about 15 mi SSE of Autlán by way of Chante, ca 2500 m, 25 Jul 1949, *R. L. & C. R. Wilbur* 1832 (MICH), 27 Jul 1949, *Wilbur & Wilbur* 1878 (MICH). MICHOACAN: Dist. Coalcomán, Sierra Torricillas, 2360 m, 12 Oct 1938, *G. B. Hinton* 12354 (MICH, MO, US), Jul 1939, *Hinton* 15021 (US), Barroloso, 2250 m, 21 Oct 1939, *Hinton* 15355 (MICH, MO, US). PUEBLA: Teziutlán, 1846 m, 20 Dec 1963, *R. C. Koeppen s.n.* (MICH); Chinantla, Mai 1841, *Liebmann* 3795 (US). SAN LUIS POTOSÍ: 5 km NW de Ahuacatlán, Munic. de Xilitla, sobre el camino a El Lobo, 1450 m, 30 Aug 1957, *J. Rzedowski* 9256 (ENCB). VERACRUZ: San Miquel, Jalapa, 2000 m, 3 Jun 1938, *E. K. Balls* 4719 (US); Coscomatepec, 10 Mai 1937, *E. Matuda* 1306 (MICH), Cerro Punta Coscomatepec, 10 Mai 1937, *Matuda* 1507 [1307?] (MICH); prope San Andres, Aug 1828, *C. J. W. Schiede s.n.* (HAL); prope Jalapam, Mai 1829, *Schiede s.n.* (HAL), Jun 1829, *Schiede s.n.* (HAL).

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Stuart Kimball Harris

Notice has been received of the death of Dr. Stuart K. Harris on July 30, 1969. A long time active member of the New England Botanical Club and one of its editorial board for nearly as many years, Dr. Harris was President of the Club at the time of his death. A suitable memorial will appear in an early number of Rhodora.

The Editor

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